

Serial No. 09/871,223Docket No.: 53924US010**Amendments to the Claims**

A detailed list of all claims under examination is set out below. Please cancel claims 1 – 20 and 44 – 65 without prejudice, and add new claims 73-92 as shown below:

1. (Cancelled) A filtration device comprising a web of material that itself comprises a layer of filtration material, the web material having first and second major surfaces and an opening, and at least one component that is attached to the web material, the component comprising a component base portion having a surface that abuts against the first major surface of the web material and an extension member that extends from the component base portion and passes through the opening of the web material, the extension member also having a deformed portion that is turned back toward the component base portion and has at least a surface part thereof that is positioned against the second major surface of the web material so as to clamp the component in fluid-tight relationship to the web material.
2. (Cancelled) The filtration device of claim 1, wherein the surface part of the deformed portion abuts against the second major surface all the way about the opening that is provided through the web material so as to effectively create a sealed attachment between the component and the web material.
3. (Cancelled) The filtration device of claim 2, wherein the extension member comprises a portion extending from the component base portion and the deformed portion, the deformed portion comprises a first portion extending back toward the component base portion and that has an end that is positioned over a peripheral zone of the second major surface of the web material, and a surface part of the deformed portion that abuts against the second major surface of the web material is provided on the end of the first portion of the deformed portion, whereby the peripheral zone of the web material is compressed and thus clamped between the end of the first portion and the component base portion.

Serial No. 09/871,223Docket No.: S3924US010

4. (Cancelled) The filtration device of claim 3, wherein the extension member is round as viewed in a transverse cross-section taken through the portion of the extension member that extends from the component base portion.

5. (Cancelled) The filtration device of claim 4, further including means for restricting rotation of the component relative to the web material, the means being provided to act between the web material and one of its interfaces with the base portion and the surface part of the deformed portion that abuts against the second major surface of the web material.

6. (Cancelled) The filtration device of claim 5, wherein the means for restricting rotation comprises adhesive.

7. (Cancelled) The filtration device of claim 3, wherein some of the peripheral zone of web material is also provided between the portion of the extension member that extends from the component base portion and the first portion of the deformed portion.

8. (Cancelled) The filtration device of claim 3, wherein the deformed portion further comprises a second portion provided at the end of the first portion and that extends a distance away from the first portion over a peripheral zone of the second major surface of the web material, and a surface part of the deformed portion that abuts against the second major surface of the web material is provided on the second portion of the deformed portion, whereby the peripheral zone of the web material is compressed and thus clamped between the second portion and the component base portion.

9. (Cancelled) The filtration device of claim 8, wherein some of the peripheral zone of web material is also provided between the portion of the extension member that extends from the component base portion and the first portion of the deformed portion.

Serial No. 09/871,223Docket No.: 53924US010

10. (Cancelled) The filtration device of claim 8, wherein the portion of the extension member that extends from the component base portion is thicker in its transverse cross-section than the deformed portion.

11. (Cancelled) The filtration device of claim 10, wherein the portion of the extension member that extends from the component base portion further includes a protrusion that extends along it and also engages the peripheral zone of the web material.

12. (Cancelled) The filtration device of claim 10, wherein the deformed portion decreases in its thickness in transverse cross-section as it extends toward its end.

13. (Cancelled) The filtration device of claim 10, wherein the deformed portion includes a thinned area extending along it at a location of a bend provided therein

14. (Cancelled) The filtration device of claim 13, wherein the deformed portion includes plural thinned areas extending along it, including a first thinned area at a location of a bend that is provided where the deformed portion of the extension member is turned back toward the component base portion and a second thinned area at a location of a bend between the first and second portions of the deformed portion.

15. (Cancelled) The filtration device of claim 1, wherein the web material comprises a plurality of layers of material including at least one layer of filtration material.

16. (Cancelled) The filtration device of claim 1, wherein the web material comprises a mask body of a respiratory mask.

17. (Cancelled) The filtration device of claim 16, wherein the component comprises at least a part of an exhalation valve that includes an opening provided through the extension member.

Serial No. 09/871,223Docket No.: 53924US010

18. (Cancelled) The filtration device of claim 17, wherein the web material comprises a plurality of layers with a first layer forming the first major surface being a spun bond material.

19. (Cancelled) The filtration device of claim 18, in which the spun bond material is a polypropylene spun bond material, and the component base portion and its extension member are formed from polypropylene.

20. (Cancelled) The filtration device of claim 16, wherein the mask body includes structurally defined fold lines making it capable of being folded flat for storage and, during use, being capable of forming a cup-shaped zone over a mouth and nose of a wearer.

21. (Original) A method of attaching a component to a web of material comprising filtration material, the method comprising the steps of:

providing a web comprising a layer of filtration material, the web having first and second major surfaces and an opening provided through it;

providing a component that comprises a component base portion and a deformable extension member that extends from the base to a tip;

inserting the extension member tip first through the opening in the web material and contacting a surface of the component base portion against the first major surface of the web material with the extension member extending through the opening; and then

deforming the extension member back toward the component base portion so that at least a surface of the extension member abuts against the second major surface of the web material and, along with the contact of the surface of the component base portion and the first major surface of the web material, clamps the component in fluid-tight relationship to the web material.

22. (Original) The method of claim 21, wherein the step of providing web material comprises the provision of a multi-layer web material comprising at least one layer of filtration material.

*Draft*

Serial No. 09/871,223

Docket No.: 53924US010

23. (Original) The method of claim 21, wherein the step of providing a component includes loading the component onto a die of a cooperating punch and die system and supporting at least a portion of the component base portion by an anvil portion of the die.
24. (Original) The method of claim 23, wherein the step of inserting the extension member of the component through the opening of the web material is conducted after the component is loaded on the die and includes moving the web material and die relative to one another until a surface of the component base portion abuts the first major surface of the web material.
25. (Original) The method of claim 23, wherein the step of deforming the extension member of the component back toward the component base portion comprises advancing a punch assembly relative to the web material after the component is inserted in position and deforming the extension member by contact of the extension member with the advancing punch assembly, whereby the punch assembly bends a deformed portion of the extension member relative to a non-deformed portion of the extension member so that its tip is moved closer to the second major surface of the web material.
26. (Original) The method of claim 25, wherein the step of deforming the extension member of the component back toward the component base portion further comprises a second deforming step for bending the deformed portion of the extension member into a first portion that extends toward the web material and a second portion of the deformed portion that extends for a distance over the second surface of the web material.
27. (Original) The method of claim 25, wherein the step of deforming the extension member of the component back toward the component base portion is conducted by selectively advancing inner and outer punches of the punch assembly so that an initial deformation is performed by advancing the inner punch to define a first bend between the deformed and non-deformed portions of the extension member while the tip of the extension member is moved toward the second major

Serial No. 09/871,223Docket No.: 53924US010

surface of the web material, and a second deformation is performed by advancing the outer punch relative to a stationary inner punch after the initial deformation so as to move the tip of the extension member closer to the second major surface of the web material and to abut a surface of the extension member against the second major surface of the web material.

28. (Original) The method of claim 27, wherein the second deformation also produces a second bend between a first portion of the deformed portion that extends toward the web material and a second portion of the deformed portion that extends for a distance over the second surface of the web material.

29. (Original) The method of claim 21, wherein the step of deforming the extension member back toward the component base portion includes controlling the deformation so that the surface of the extension member that abuts against the second major surface of the web material and the surface of the component base portion that contacts the first major surface of the web material are closer to each other than the thickness of the web material so as to compress the web material and thereby facilitate clamping of the component in fluid-tight relationship to the web material.

30. (Original) The method of claim 21, further including a step of providing a seal enhancing substance between at least one of the interface between the surface of the extension member and the second major surface of the web material and the interface between the surface of the component base portion and the first major surface of the web material so as to facilitate making a fluid-tight relationship of the component to the web material.

31. (Original) The method of claim 21, wherein the web material comprises a mask body of a respiratory mask, the opening is provided through the mask body, and the component is attached to the mask body.

Serial No. 09/871,223Docket No.: 53924US010

32. (Original) The method of claim 21, wherein the step of deforming the extension member back toward the component base portion is conducted as a cold forming process.

33. (Original) The method of claim 21, wherein the step of deforming the extension member back toward the component base portion is conducted as a thermal forming process including a step of introducing a sufficient quantity of heat to the extension member of the component prior to the deforming step so as to permit the extension member to be deformed under process conditions that would otherwise not be suitable to perform the deforming step.

34. (Original) A method of making a respiratory mask, wherein a component is attached to a mask body, the method comprising the steps of:

providing a mask body comprising a layer of filtration material, the mask body having first and second major surfaces and an opening provided through it;

providing a component that comprises a component base portion and a deformable extension member that extends from the base to a tip;

inserting the extension member tip first through the opening in the mask body and contacting a surface of the component base portion against the first major surface of the mask body with the extension member extending through the opening; and then

deforming the extension member back toward the component base portion so that at least a surface of the extension member abuts against the second major surface of the mask body and, along with the contact of the surface of the component base portion and the first major surface of the mask body, clamps the component in fluid-tight relationship to the mask body.

35. (Original) The method of claim 34, further including a step of molding a piece of web material comprising at least one layer of filtration material into a shaped mask body for a respiratory mask of a shape that will create an open volume about at least a part of a wearer's face.

Serial No. 09/871,223Docket No.: 53924US010

36. (Original) The method of claim 35, wherein the molding step is conducted prior to attaching the component to the mask body.

37. (Original) The method of claim 35, wherein the component comprises at least a part of an exhalation valve that is attached to the molded mask body.

38. (Original) The method of claim 34, further including a step of converting web material that comprises at least one layer of filtration material into a foldable respiratory mask that can be folded into a flat state and unfolded to form a shape that will create an open volume about at least a part of a wearer's face.

39. (Original) The method of claim 34, wherein the step of deforming the extension member back toward the component base portion is conducted as a cold forming process.

40. (Original) The method of claim 34, wherein the step of deforming the extension member back toward the component base portion is conducted as a thermal forming process including a step of introducing a sufficient quantity of heat to the extension member of the component prior to the deforming step so as to permit the extension member to be deformed under process conditions that would otherwise not be suitable to perform the deforming step.

41. (Original) An inline method of making plural foldable respiratory masks that can be folded into a flat state and unfolded to form a shape that will create an open volume about at least a part of a wearer's face, the method including the steps of providing a web material comprising a layer of filtration material, performing a number of sequential forming operations for converting the web material into a series of foldable respiratory masks, and attaching a component to each respiratory mask, the method of attaching each one of plural components to a plurality of respiratory masks comprising the steps of:

providing an opening through a mask body from a first major surface to a second major surface thereof;

Serial No. 09/871,223Docket No.: 53924US010

providing a component comprising a component base portion and a deformable extension member that extends from the base to a tip;  
inserting the extension member of the component, tip first, through an opening in the mask body and contacting a surface of the component base portion against the first major surface of the mask body with the extension member extending through the opening; and then  
deforming the extension member back toward the component base portion so that at least a surface of the extension member abuts against the second major surface of the mask body and, along with the contact of the surface of the component base portion and the first major surface of the mask body, clamps the component in fluid-tight relationship to the mask body.

42. (Original) The method of claim 41, wherein the step of deforming the extension member back toward the component base portion is conducted as a cold forming process.

43. (Original) The method of claim 42, wherein the step of deforming the extension member back toward the component base portion is conducted as a thermal forming process including a step of introducing a sufficient quantity of heat to the extension member of the component prior to the deforming step so as to permit the extension member to be deformed under process conditions that would otherwise not be suitable to perform the deforming step.

44. (Cancelled) A filtration device comprising:

- a. a web of material comprising a layer of filtration material and having first and second major surfaces and an aperture, and
- b. at least one component comprising a component base portion and an extension member that extends from the component base portion through the aperture, the extension member being deformed to have a surface in sufficient contact with the web of material so as to make an effective seal between the component and the web of material.

Serial No. 09/871,223Docket No.: 53924US010

45. (Cancelled) The filtration device of claim 44, wherein a surface of the extension member contacts the second major surface.

46. (Cancelled) The filtration device of claim 44, wherein the extension member has a tip with an end surface, and the end surface contacts the second major surface.

47. (Cancelled) The filtration device of claim 44, wherein a portion of the extension member is deformed to extend radially outward from the aperture.

48. (Cancelled) The filtration device of claim 44, wherein a portion of the extension member is deformed toward the base portion.

49. (Cancelled) The filtration device of claim 48, wherein a portion of the extension member is deformed in a reverse bend toward the base portion.

50. (Cancelled) The filtration device of claim 44, wherein the extension member has an outer wall with an outer diameter and the aperture in the web of material is sized smaller than the outer diameter.

51. (Cancelled) The filtration device of claim 50, wherein a portion of the web of material adjacent the aperture is turned along the outer wall.

52. (Cancelled) The filtration device of claim 44, wherein a portion of the web of material is sandwiched between two portions of the extension member.

53. (Cancelled) The filtration device of claim 44, wherein a portion of the web of material is sandwiched between the extension member and the base portion.

54. (Cancelled) The filtration device of claim 44, wherein a portion of the web of material is compressed between the extension member and the base portion.

Serial No. 09/871,223Docket No.: 53924US010

55. (Cancelled) The filtration device of claim 44, wherein a portion of the web of material is mechanically clamped between the extension member and the base portion.

56. (Cancelled) The filtration device of claim 44, wherein there is a fluid tight connection between the component and the filtration material.

57. (Cancelled) The filtration device of claim 44, wherein there is a gripping feature on the component extending into the thickness of the filtration material to prevent rotation of the component relative to the filtration material.

58. (Cancelled) The filtration device of claim 44, further comprising an adhesive between the component and the filtration material to prevent rotation of the component relative to the filtration material.

59. (Cancelled) The filtration device of claim 44, wherein the component comprises an exhalation valve.

60. (Cancelled) A respiratory mask comprising:

- a. a web of material comprising a layer of filtration material and having first and second major surfaces and an aperture, and
- b. an exhalation valve comprising a base portion and an extension member that extends from the base portion through the aperture, the extension member having a deformed portion that contacts a portion of the web of material surrounding the aperture.

61. (Cancelled) The respiratory mask of claim 60, wherein the deformed portion is in sufficient contact with the web of material so as to make an effective seal between the component and the web of material.

62. (Cancelled) The respiratory mask of claim 61, wherein there is an effective seal between the component and the filtration material.

Serial No. 09/871,223Docket No.: 53924US010

63. (Cancelled) The respiratory mask of claim 60, wherein the deformed portion contacts the second major surface.

64. (Cancelled) The respiratory mask of claim 60, wherein the extension member is deformed to extend radially outward from the aperture.

65. (Cancelled) The respiratory mask of claim 60, wherein the extension member has an outer wall with an outer diameter, the aperture in the web of material is sized smaller than the outer diameter, and a portion of the filtration material adjacent the aperture is turned along a portion of the outer wall.

66. (Previously added) A method of attaching a component to a web of material comprising filtration material, the method comprising:

- a. providing a web of material comprising a layer of filtration material and having first and second major surfaces and an aperture;
- b. providing a component comprising a base portion and a deformable extension member that extends from the base portion to a tip;
- c. inserting the tip through the aperture; and
- d. deforming the extension member so as to make an effective seal between the component and the web of material.

67. (Previously added) The method of claim 66, wherein the component is clamped in fluid-tight relationship to the filtration material.

68. (Previously added) The method of claim 66, wherein the extension member is deformed by contact with a forming punch and die, whereby a deformed portion of the extension member is bent relative to a non-deformed portion of the extension member.

69. (Previously added) The method of claim 66, wherein the extension member is deformed by cold forming.

Serial No. 09/871,223Docket No.: 53924US010

70. (Previously added) The method of claim 66, wherein the extension member is deformed by thermal forming.

71. (Previously added) A method of making a respiratory mask, wherein a component is attached to a mask body, the method comprising:

- a. providing a mask body comprising a layer of filtration material and having an aperture therein;
- b. providing a component comprising a base portion and a deformable extension member that extends from the base portion to a tip;
- c. inserting the tip through the aperture; and
- d. deforming the extension member so as to make an effective seal between the component and mask body.

72. (Previously added) The method of claim 71, wherein the component comprises an exhalation valve.

73. (New) A method of attaching a component to a web of material comprising filtration material, the method comprising:

- a. providing a web of material comprising a layer of filtration material and having first and second major surfaces and an aperture;
- b. providing a component comprising a base portion and a deformable extension member that extends from the base portion to a tip;
- c. inserting the tip through the aperture; and
- d. deforming the extension member so that a surface portion of the base portion contacts the first major surface and a surface portion of the extension member contacts the second major surface.

74. (New) The method of claim 73, wherein the extension member is deformed radially outwardly.

75. (New) The method of claim 73, wherein a portion of the extension member is deformed toward the base portion.

Serial No. 09/871,223Docket No.: 53924US010

76. (New) The method of claim 73, wherein a portion of the extension member is deformed in a reverse bend.

77. (New) The method of claim 73, wherein the component has a gripping feature extending into the thickness of the filtration material to prevent rotation of the component relative to the filtration material.

78. (New) The method of claim 73, further comprising applying adhesive between the component and the filtration material to prevent rotation of the component relative to the filtration material.

79. (New) The method of claim 73, wherein the component is clamped in fluid-tight relationship to the filtration material.

80. (New) The method of claim 73, wherein the extension member is deformed by cold forming.

81. (New) The method of claim 73, wherein the extension member is deformed by thermal forming.

82. (New) The method of claim 73, wherein the component comprises an exhalation valve.

83. (New) A method of making a respiratory mask, wherein a component is attached to a mask body, the method comprising:

- a. providing a mask body comprising a layer of filtration material and having an aperture therein;
- b. providing a component comprising a base portion and a deformable extension member that extends from the base portion to a tip;
- c. inserting the tip through the aperture; and
- d. deforming the extension member so that a surface portion of the base portion contacts the first major surface and a surface portion of the extension member contacts the second major surface.

Serial No. 09/871,223Docket No.: 53924US010

84. (New) The method of claim 84, wherein the extension member is deformed radially outwardly.
85. (New) The method of claim 84, wherein a portion of the extension member is deformed toward the base portion.
86. (New) The method of claim 84, wherein a portion of the extension member is deformed in a reverse bend.
87. (New) The method of claim 84, wherein the component has a gripping feature extending into the thickness of the filtration material to prevent rotation of the component relative to the filtration material.
88. (New) The method of claim 84, further comprising applying adhesive between the component and the filtration material to prevent rotation of the component relative to the filtration material.
89. (New) The method of claim 84, wherein the component is clamped in fluid-tight relationship to the filtration material.
90. (New) The method of claim 84, wherein the extension member is deformed by cold forming.
91. (New) The method of claim 84, wherein the extension member is deformed by thermal forming.
92. (New) The method of claim 84, wherein the component comprises an exhalation valve.